

## CLAIMS

1        1.        A method for integrating and displaying information related to a natural gas pipeline using  
2        a computer system, comprising:

3                    obtaining commercial, operational, and modeling information about the natural gas  
4        pipeline;

5                    relating the commercial information to the operational information;

6                    associating the commercial, operational, and modeling information with a location  
7        on a geographic representation of the natural gas pipeline; and

8                    displaying a first particular item of information from the commercial, operational, and  
9        modeling information along with a geographic representation of the natural gas pipeline on  
10       the computer system.

11       2.        The method described in claim 1, wherein the first particular item of information is a  
12       combination of two individual items of information selected from the commercial, operational, and  
13       modeling information.

14       3.        The method described in claim 1, further comprising:

15                    presenting several predefined combinations of the commercial information,  
16       operational information, and modeling information; and

17                    receiving a selection of one of the several predefined combinations of the commercial  
18       information, operational information, and modeling information, wherein the selected  
19       predefined combination becomes the first particular item of information to be displayed.

1        4.        The method described in claim 1, further comprising:  
2                    receiving a request to enlarge a portion of the geographic representation of the natural  
3        gas pipeline, wherein the first particular item of information is located in the portion to be  
4        enlarged;  
5                    obtaining additional items of commercial, operational, and modeling information for  
6        the geographic area to be enlarged; and  
7                    displaying the first particular item of information, the additional items of information,  
8        and an enlarged portion of the geographic representation of the natural gas pipeline.

1        5.        The method described in claim 1, wherein the relating step further includes associating gas  
2        supplied to and withdrawn from the natural gas pipeline with the commercial information.

1        6.        The method described in claim 1, wherein the relating step further includes utilizing the  
2        modeling information to associate future supplies of gas to and withdrawals of gas from the natural  
3        gas pipeline with the commercial information.

1 7. A method for integrating and displaying information related to a natural gas pipeline on a  
2 computer system, comprising:

3 inserting commercial, operational, and modeling information into a database  
4 structure;

5 receiving new commercial, operational, and modeling information;

6 updating the commercial, operational, and modeling information in the database with  
7 the new commercial, operational, and modeling information;

8 relating the commercial information to the operational information by determining  
9 which physical aspects of the natural gas pipeline correspond with particular components of  
10 commercial information; and

11 displaying a combination of the commercial, operational, and modeling information  
12 on the computer system.

1 8. The method described in claim 7, wherein the displaying step includes displaying commercial  
2 and operational data about a particular pipeline related data item up to present time, and displaying  
3 modeling information about forecast values for the particular pipeline data item into the future.

1 9. The method described in claim 7, wherein the relating step includes associating physical gas  
2 meters with nomination points.

1 10. The method described in claim 7, further comprising:

2 obtaining the operational information from a SCADA system associated with the  
3 natural gas pipeline; and

4 obtaining the modeling information from a computer modeling system that executes  
5 software to predict future supplies of gas to and withdrawals of gas from the natural gas  
6 pipeline.

1 11. An apparatus for integrating and displaying information related to a natural gas pipeline,  
2 comprising:

3 a computer system containing commercial, operational, and modeling information  
4 about the natural gas pipeline, the computer system being operable in a particular mode of  
5 operation, wherein the computer system

6 relates the commercial information to the operational information;

7 associates the commercial, operational, and modeling information with a  
8 location on a geographic representation of the natural gas pipeline; and

9 displays the first particular item of information from the commercial,  
10 operational, and modeling information along with a geographic representation of the  
11 natural gas pipeline.

1 12. The apparatus described in claim 11, wherein the first particular item of information is a  
2 combination of two individual items of information selected from the commercial, operational, and  
3 modeling information.

1 13. The apparatus described in claim 11, wherein the particular mode of operation further  
2 includes the computer system:

3 presenting several predefined combinations of the commercial information,  
4 operational information, and modeling information; and

5 receiving a selection of one of the several predefined combinations of the commercial  
6 information, operational information, and modeling information, wherein the selected  
7 predefined combination becomes the first particular item of information to be displayed.

1 14. The apparatus described in claim 11, wherein the particular mode of operation further  
2 includes the computer system:

3 receiving a request to enlarge a portion of the geographic representation of the natural  
4 gas pipeline, wherein the first particular item of information is located in the portion to be  
5 enlarged;

6 obtaining additional items of commercial, operational, and modeling information for  
7 the geographic area to be enlarged; and

8 displaying the first particular item of information, the additional items of information,  
9 and an enlarged portion of the geographic representation of the natural gas pipeline.

1 15. The apparatus described in claim 11, wherein the particular mode of operation further  
2 includes the computer system associating the supply of gas to and withdrawal of gas from the natural  
3 gas pipeline with the commercial information.

4 16. The apparatus described in claim 11, wherein the particular mode of operation further  
5 includes the computer system utilizing the modeling information to associate future gas supplies to  
6 and withdrawals from the natural gas pipeline with the commercial information.

1 17. An apparatus for integrating and displaying information related to a natural gas pipeline,  
2 comprising:

3 a computer system executing a database program that contains commercial,  
4 operational, and modeling information about the natural gas pipeline, the computer system  
5 being operable in a particular mode of operation, wherein the computer system

6 receives new commercial, operational, and modeling information;

7 updates the commercial, operational, and modeling information in the  
8 database with the new information;

9 relates the commercial information to the operational information by  
10 determining which physical aspects of the natural gas pipeline correspond with  
11 particular components of the commercial information; and

12 displays a combination of the commercial, operational, and modeling  
13 information.

14 18. The apparatus described in claim 17, wherein the particular mode of operation further  
15 includes the computer system displaying commercial and operational data about a particular pipeline  
16 related data item up to present time, and displaying modeling information about forecast values for  
17 the particular pipeline data item into the future.

18 19. The apparatus described in claim 17, wherein the particular mode of operation further  
19 includes the computer system associating physical gas meters with nomination points.

20 20. The apparatus described in claim 17, further comprising:

21 a SCADA system associated with the natural gas pipeline and connected to the  
22 computer system;

23 a computer modeling system that executes software which predicts the amount of gas  
24 to be supplied to and withdrawn from the natural gas pipeline; and

25 electronically transmitting the operational information and modeling information to  
26 a computer system in communication with the database.

1 21. An apparatus for integrating and displaying information related to a natural gas pipeline,  
2 comprising:

3 a computer system containing commercial, operational, and modeling information  
4 about the natural gas pipeline, wherein the computer system includes

5 relation means for relating the commercial information to the operational  
6 information;

7 association means for associating the commercial, operational, and modeling  
8 information with a location on a geographic representation of the natural gas  
9 pipeline; and

10 display means for displaying the first particular item of information from the  
11 commercial, operational, and modeling information along with a geographic  
12 representation of the natural gas pipeline.

13 22. The apparatus described in claim 21, wherein the first particular item of information is a  
14 combination of two individual items of information selected from the commercial, operational, and  
15 modeling information.

16 23. The apparatus described in claim 21, wherein the computer system further includes:

17 presentation means for presenting several predefined combinations of the commercial  
18 information, operational information, and modeling information; and

19 reception means for receiving a selection of one of the several predefined  
20 combinations of the commercial information, operational information, and modeling  
21 information, wherein the selected predefined combination becomes the first particular item  
22 of information to be displayed.

1      24.      The apparatus described in claim 21, wherein the computer system further includes:  
2                      request reception means for receiving a request to enlarge a portion of the geographic  
3      representation of the natural gas pipeline, wherein the first particular item of information is  
4      located in the portion to be enlarged;  
5                      obtaining means for obtaining additional items of commercial, operational, and  
6      modeling information for the geographic area to be enlarged; and  
7                      display means for displaying the first particular item of information, the additional  
8      items of information, and an enlarged portion of the geographic representation of the natural  
9      gas pipeline.

1      25.      The apparatus described in claim 21, wherein the computer system further includes  
2      association means for associating gas supplies to and withdrawals from the natural gas pipeline with  
3      the commercial information.

1      26.      The apparatus described in claim 21, wherein the computer system further includes utilization  
2      means for utilizing the modeling information to associate future supplies of gas to and withdrawals  
3      of gas from the natural gas pipeline with the commercial information.



1 27. An apparatus for integrating and displaying information related to a natural gas pipeline,  
2 comprising:

3 a computer system executing a database program that contains commercial,  
4 operational, and modeling information about the natural gas pipeline, wherein the computer  
5 system further includes

6 reception means for receiving new commercial, operational, and modeling  
7 information;

8 update means for updating the commercial, operational, and modeling  
9 information in the database with the new information;

10 relation means for relating the commercial information to the operational  
11 information by determining which physical aspects of the natural gas pipeline  
12 correspond with particular components of commercial information; and

13 display means for displaying a combination of the commercial, operational,  
14 and modeling information.

1 28. The apparatus described in claim 27, wherein the computer system further includes display  
2 means for displaying commercial and operational data about a particular pipeline related data item  
3 up to present time, and displaying modeling information about forecast values for the particular  
4 pipeline data item into the future.

1 29. The apparatus described in claim 27, the computer system further includes association means  
2 for associating physical gas meters with nomination points.

1        30.    The apparatus described in claim 27, further comprising:

2                a SCADA system for generating the operational information associated with the  
3        natural gas pipeline;

4                model means for generating the modeling information that predicts the amount of gas  
5        to be supplied to and withdrawn from the natural gas pipeline; and

6                transmission means for transmitting the operational information and modeling  
7        information to the database.